UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte THOMAS ULLEIN and BOLKO SCHUSEIL

Appeal No. 2005-1727
Application No. 09/925,013

HEARD: DECEMBER 14, 2005

Before PATE, McQUADE and CRAWFORD, Administrative Patent Judges.
McQUADE, Administrative Patent Judge.

DECISION ON APPEAL

Thomas Ullein et al. appeal from the final rejection (mailed November 3, 2003) of claims 1-4, 6-15, 17-22, 27-30, 32 and 33. Claims 5, 16, 23 and 24, the only other claims pending in the application, stand objected to as depending from rejected base claims.

THE INVENTION

The invention relates to "a chain tensioner as used in chain drives of internal combustion engines for tensioning the chain during operation" (specification, page 1). Representative claim 1 reads as follows:[1]

1. A chain tensioner, comprising:

a tensioner piston bearing upon a chain;

a cylinder guiding the piston for movement in a direction of the chain and bounding with the piston a pressure chamber for receiving hydraulic fluid;

a leakage gap for migration of hydraulic fluid from the pressure chamber; and

a control member for at least reducing the leakage gap in size, when a pressure in the pressure chamber increases.

THE PRIOR ART

The references relied on by the examiner to support the final rejection are:

Stief et al. (Stief)	5,931,754	Aug. 03, 1999
Smith	6,361,458	Mar. 26, 2002

[1] In claim 27, the term "the first seat" lacks a proper antecedent basis and the term "circumferential grooves" is inconsistent with the underlying specification which more accurately describes the subject grooves as "circumferentially spaced grooves." Steps should be taken in the event of further prosecution to correct these informalities.

THE REJECTIONS

Claims 1-4, 6-15, 17 and 18 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Stief.

Claims 19-22, 27-30, 32 and 33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Stief in view of Smith.

Attention is directed to the main and reply briefs (filed April 5, 2004 and September 22, 2004) and answer (mailed July 19, 2004) for the respective positions of the appellants and examiner regarding the merits of these rejections.

DISCUSSION

I. The 35 U.S.C. § 102(b) rejection of claims 1-4, 6-15, 17 and 18 as being anticipated by Stief

Anticipation is established only when a single prior art reference discloses, expressly or under principles of inherency, each and every element of a claimed invention. RCA Corp. v. Applied Digital Data Sys., Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir. 1984). In other words, there must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention. Scripps Clinic & Research Found. v. Genentech Inc., 927 F.2d 1565, 1576, 18 USPQ2d 1001, 1010 (Fed. Cir. 1991).

Stief pertains to chain tensioners of the sort disclosed and claimed by the appellants. For purposes of the appealed rejections, the examiner focuses on the embodiment illustrated in Figures 1-4. As described by Stief,

> . . . [T]here are shown a tensioner according to the present invention, a piston 1, a tensioner housing 2 and a receiving housing 3. The piston 1 constitutes the fixed element with one of its ends inserted into the tensioner housing 2 which is configured as a cylindrical body and constitutes the displaceable element. . . .
>
> A non-return valve 7 separating a high pressure chamber 8 of the tensioner housing 2 from an oil reservoir 9 of the piston 1 is arranged in the connecting region between the piston 1 and the tensioner housing 2. The piston 1 made as a cylindrical body is supported at its end remote from the non-return valve 7 on the bottom of the receiving housing 3 in whose cylindrical bore 10 it is arranged. Thus, the piston 1, like the receiving housing 3, is stationary. It is supplied through an oil input opening 11 and an oil transfer groove 12 with hydraulic oil which flows into the oil reservoir 9.
>
> A compression spring 13 arranged in the tensioner housing 2 is supported at one end on the piston 1 and at the other end on the piston-remote bottom of the tensioner housing 2. This compression spring 13 effects the extension of the tensioner housing 2 out of the receiving housing 3, away from the piston 1 in a chain tensioning direction, whereas force pulses from the chain cause the tensioner housing 2 to retract against the action of the compression spring 13 into the tensioner housing 2, over the piston 1. The non-return valve 7 with a ball as a closing member can open during the extension of the tensioner housing 2 and is closed during retraction. The hydraulic oil contained in the high pressure chamber 8 flows out of the tensioner housing 2 through a leak gap 14 between the piston 1 and the tensioner housing 2 during retraction. This pressing-out

> of hydraulic oil from the high pressure chamber 8 of the tensioner housing 2 is accompanied by a high fluid friction and thus has a damping effect on the chain to be tensioned which transmits its force pulses to the tensioner housing 2 [column 3, line 40, through column 4, line 17].

In applying Stief against independent claim 1 (see pages 3 and 4 in the answer), the examiner reads the claim limitations relating to the piston, cylinder, pressure chamber and control member on Stief's tensioner housing 2, receiving housing 3, pressure chamber 8 and non-return valve 7, respectively. As for the leakage gap limitation in the claim, the examiner points to Stief's disclosure of "the gap formed between the chambers 8 and 9, and . . . gap 14" (answer, page 3) and explains that

> during extension of the piston 2 the pressure in chamber 8 decreases and the ball opens from its seat so that fluid flows through the gap between chambers 8 and 9 and the gap 14, [and] during retraction of the piston the pressure in chamber 8 increases to dampen the effects of the chain, and the ball of the valve closes the gap between the chambers 8 and 9 allowing fluid to only flow through the gap 14 [answer, pages 3 and 4].

As indicated above, the leakage gap recited in claim 1 is for "migration of hydraulic fluid <u>from</u> the pressure chamber" (emphasis added). The examiner's determination that the passage which is associated with the non-return valve 7 and which connects Stief's high pressure chamber 8 and oil reservoir 9 constitutes such a leakage gap is not well founded. Stief provides no factual basis

which would lead a person of ordinary skill in the art to view this passage as a leak gap which permits migration of hydraulic fluid or oil from the pressure chamber 8. As disclosed by Stief, the only gap which allows such migration is leak gap 14. Neither non-return valve 7 nor any other structure in the Stief tensioner embodies a control member for at least reducing leak gap 14 in size when pressure in the pressure chamber increases.

Hence, Stief does not disclose each and every element of the chain tensioner recited in independent claim 1. Accordingly, we shall not sustain the standing 35 U.S.C. § 102(b) rejection of claim 1, and dependent claims 2-4, 6-15, 17 and 18 as being anticipated by Stief.

II. The 35 U.S.C. § 103(a) rejection of claims 19-22, 27-30, 32 and 33 as being unpatentable over Stief in view of Smith

Independent claims 28 and 32 contain limitations similar to those in independent claim 1 relating to the leakage gap and control member. More particularly, claim 28 recites a chain tensioner comprising "a control member for regulating a fluid flow through a leakage gap to the outside in dependence on a pressure in the pressure chamber," and claim 32 sets forth a chain tensioner comprising "a second leakage gap for migration of hydraulic fluid from the pressure chamber" and "a control member for reducing a

fluid flow through the second leakage gap, as the pressure in the pressure chamber rises."

The findings by the examiner (see pages 7-9 in the answer) that these limitations are met by Stief's non-return valve 7 and the associated passage connecting high pressure chamber 8 and oil reservoir 9 are unsound for the reasons expressed above in connection with the rejection of claim 1. The examiner's application of Smith in combination with Stief does not cure this evidentiary deficiency.

Therefore, we shall not sustain the standing 35 U.S.C. § 103(a) rejection of independent claims 28 and 32, and dependent claims 19-22, 27, 29, 30 and 33, as being unpatentable over Stief in view of Smith.

SUMMARY

The decision of the examiner to reject claims 1-4, 6-15, 17-22, 27-30, 32 and 33 is reversed.

REVERSED

WILLIAM F. PATE, III)
Administrative Patent Judge)
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JOHN P. McQUADE) BOARD OF PATENT
Administrative Patent Judge) APPEALS
) AND
) INTERFERENCES
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MURRIEL E. CRAWFORD)
Administrative Patent Judge)

Henry M. Feiereisen, LLC
350 Fifth Avenue
Suite 4714
New York, NY 10118

JPM/ki